

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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U.S. PHILIPS CORPORATION,

Plaintiff,

03 Civ. 0172 (PKC)

-against-

MEMORANDUM
AND ORDER

IWASAKI ELECTRIC LTD,

Defendant.
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P. KEVIN CASTEL, District Judge:

United States Philips Corporation (“U.S. Philips”) is the owner of U.S. Patent No. 5,109,181 (the “’181 Patent”). On January 8, 2003, it commenced an action against Iwasaki Electric Co., Ltd (“Iwasaki”) claiming infringement of the ’181 patent and two other patents, relating to super high pressure mercury vapor discharge lamps and associated devices. The lamps are used in projection televisions and digital projectors. Discovery in this action proceeded for an extended period and has concluded. On November 22, 2005, I conducted a claims construction hearing and issued a written ruling. U.S. Philips Corp. v. Iwasaki Electric Co., 2006 WL 20504 (S.D.N.Y. Jan. 3, 2006).

Defendant Iwasaki now moves for partial summary judgment on the ground of non-infringement of the ’181 patent. It asserts that, it has not manufactured or sold lamps that literally infringe the ’181 patent since first receiving notice of the patent in compliance with 35 U.S.C. § 287(a). It also asserts that there is no literal infringement and that the theory advanced by U.S. Philips under the doctrine of equivalents is foreclosed on the facts of record. For the reasons set forth herein, I conclude that Iwasaki is entitled to summary judgment in its favor on the ’181 patent.

Background

The '181 patent was issued on April 28, 1992, and Drs. Hanns Ernst Fischer and Horst Hoerster are the named inventors. It describes a high pressure mercury vapor discharge lamp operating at a pressure in excess of 200 bar.¹ The '181 patent describes how tungsten which has evaporated from the electrodes causes blackening of the wall of the lamp and leads to undesirably high temperatures and a shortened useful life. The introduction of a halogen (chlorine, iodine or bromine) creates a tungsten transport cycle by which the evaporated tungsten is transported back to the electrodes.

The tungsten transport cycle was well known in the art at the time of the '181 application. (Devonshire Report, p. 9; Devonshire Answering Report, pp. 20-21) The Holmes patent,² a German prior art reference for a super high pressure mercury discharge lamp, taught that the introduction of a halogen increased the life of the lamp. The Holmes patent claimed the introduction "between 5×10^{-5} and 5×10^{-7} grams-atoms/cm³ of a halogen" into the discharge space. (Claim 1 of the '396 patent) As converted into micromoles per cubic millimeter and described by U.S. Philips's own expert, "[t]he Holmes Patent teaches a halogen range of 5×10^{-4} to 5×10^{-2} $\mu\text{mol/mm}^3$ " (Devonshire Answering Report, p.27) As will be more fully discussed, claim 1 of the '181 patent requires that a halogen be "present in a quantity between 10^{-6} and 10^{-4} $\mu\text{mol/mm}^3$ ".

¹ A bar is a unit of atmospheric pressure equal to one million dynes per square centimeter or about 0.98687 standard atmosphere. (Reisberg Decl., 6/30/05, Ex. I)

² The reference is DE-AS 14 89 417 (DE '417"). The U.S. counterpart of DE '417, U.S. Patent No. 3,382,396 (the "'396 patent"), was listed by the '181 patent examiner as one of the "References Cited." DE '417, together with the '396 patent, will be referred to as the "Holmes patent".

In this action, U.S. Philips asserts infringement solely on claim 1 of the '181 patent. (JPTO, p.3, ¶ 1) Claim 1 recites as follows:

A high-pressure mercury vapor discharge lamp comprising a discharge envelope, a pair of discharge electrodes comprising tungsten between which a discharge is maintained during lamp operation, and a filling essentially consisting of mercury, a rare gas, and a halogen for maintaining a tungsten transport cycle during lamp operation, characterized in that: the quantity of mercury is larger than 0.2 mg/mm^3 , during lamp operation the mercury vapor pressure is higher than 200 bar and the wall load is higher than 1 W/mm^2 , and in that at least one of the halogens Cl, Br or I is present in a quantity between 10^{-6} and $10^{-4} \text{ } \mu\text{mol/mm}^3$.

After full discovery and with a trial date looming, the parties briefed and argued the instant partial summary judgment motion on the issue of non-infringement. On the motion, I conclude that: (1) damages are limited to the period following commencement of this action; (2) based upon this court's claim construction and facts which are not in dispute, there is no literal infringement of claim 1 of the '181 patent; and (3) the doctrine of equivalents is not available in this case as a matter of law.

Summary Judgment

Rule 56, Fed. R. Civ. P., governs a motion for summary judgment. In the context of a patent case, interpretive issues arising under Rule 56 are viewed as procedural and not unique to the areas that are exclusively assigned to the Federal Circuit. Thus, the court applies the law of the regional circuit. See Q-Pharma, Inc. v. Andrew Jergens Co., 360 F.3d 1295, 1300 (Fed. Cir. 2004); National Presto Indus., Inc. v. West Bend Co., 76 F.3d 1185, 1188 (Fed. Cir. 1996).

Summary judgment "shall be rendered forthwith if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). It is the initial burden of a movant on a

summary judgment motion to come forward with evidence on each material element of his claim or defense, demonstrating that he is entitled to relief. A fact is material if it “might affect the outcome of the suit under the governing law” Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248 (1986). The evidence on each material element must be sufficient to entitle the movant to relief in its favor as a matter of law. See Vt. Teddy Bear Co., Inc. v. 1-800 Beargram Co., 373 F.3d 241, 244 (2d Cir. 2004).

When the moving party has met this initial burden and has asserted facts to demonstrate that the non-moving party’s claim cannot be sustained, the opposing party must “set forth specific facts showing that there is a genuine issue for trial,” and cannot rest on “mere allegations or denials” of the facts asserted by the movant. Fed. R. Civ. P. 56(e). In order to defeat summary judgment, the non-movant carries only “a limited burden of production,” but “must ‘demonstrate more than some metaphysical doubt as to the material facts,’ and come forward with ‘specific facts showing that there is a genuine issue for trial.’” Powell v. Nat’l Bd. of Med. Exam’rs, 364 F.3d 79, 84 (2d Cir. 2004) (quoting Aslandis v. U.S. Lines, Inc., 477 U.S. 242, 252 (1986)).

An issue of fact is genuine “if the evidence is such that a reasonable jury could return a verdict for the nonmoving party.” Anderson, 477 U.S. at 248. The court must “view the evidence in the light most favorable to the non-moving party and draw all reasonable inferences in its favor, and may grant summary judgment only when no reasonable trier of fact could find in favor of the nonmoving party.” Allen v. Coughlin, 64 F.3d 77, 79 (2d Cir. 1995) (quotations and citations omitted); accord Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 587-88 (1986). In reviewing a motion for summary judgment, the court must scrutinize the record, and grant or deny summary judgment as the record warrants. Fed. R. Civ. P. 56(c). In the absence of any disputed material fact,

summary judgment is appropriate. Id. Mere “conclusory statements, conjecture, or speculation by the party resisting the motion will not defeat summary judgment.” Kulak v. City of New York, 88 F.3d 63, 71 (2d Cir. 1996) (citing Matsushita Elec. Indus. Co., 475 U.S. at 587). See also Anderson, 477 U.S. at 249-50 (noting that summary judgment should be granted if the evidence is “merely colorable” or “not significantly probative”).

I. Limitaion on Damages

Defendant asserts that damages may not be recovered by plaintiff for any alleged infringement in the period prior to the commencement of this lawsuit because defendant did not have “notice” of the patent, a precondition to recovery of damages. 35 U.S.C. § 287(a). U.S. Philips urges that the pre-complaint notice that was given – a June 7, 2000 letter from Philips International B.V. – was tantamount to notice by U.S. Philips, the owner of the ’181 patent.

Ordinarily, the determination of the period for which infringement damages may be recovered is an issue reached only after there has been a determination of infringement. Here, it will greatly assist the infringement analysis to address this issue first. There is no dispute that defendant Iwasaki’s target concentration of bromine since the commencement of this action was $1.6 \pm 0.4 \times 10^{-4}$ which is greater than the upper limit of the ’181 patent. Because it may have significant bearing on the infringement analysis, I will first address the notice issue.

Section 287(a) provides in relevant part as follows:

[P]ersons making, offering for sale, or selling . . . any patented article . . . may give notice to the public that the same is patented, either by fixing thereon the word “patent” or the abbreviation “pat.”, together with the number of the patent . . . In the event of failure so to mark, no damages shall be recovered by the patentee in any action for infringement, except on proof that the infringer was notified of the infringement and continued to infringe thereafter, in which event damages may be recovered only for

infringement occurring after such notice. Filing of an action for infringement shall constitute such notice.

It is undisputed that U.S. Philips sold no lamps. The lamps sold by licensees of U.S. Philips were not marked with a reference to the patent.

Here, the letter on which U.S. Philips exclusively relies as evidence of notice is a one-page letter, dated June 7, 2000. It is addressed to "Iwasaki Electric Co., Ltd." and asserts that "[w]e have become aware" of certain lamps manufactured by Iwasaki and that "[t]hese products appear to us to resemble closely UHP type lamps sold by Philips Lighting and described in at least four of our patents and patent applications." Twelve patents or patent applications are referenced, including the '181 patent and eight European or Japanese patent or patent applications. The letter encloses the patents and application publication. It further recites that "[w]e would be willing to offer you a non-exclusive license" under agreed upon terms. The letter closes "[w]ith kind regards" followed by the name "PHILIPS INTERNATIONAL B.V." ("B.V."). Underneath the name of B.V. it states, "Corporate Intellectual Property" and is followed by the signature and typed name of "J.G.A. Rofles" under whose name appears the title "Patent Portfolio Manager". In the lower right hand corner, appears the full name of the B.V. and its address in Eindhoven, The Netherlands. A telephone number and fax number in the Netherlands appears on the letter. The name U.S. Philips does not appear anywhere on the face of the letter.

The First Amended Complaint alleges that U.S. Philips is a Delaware corporation with its principal place of business in New York and that it is the owner of the '181 patent. (AC ¶¶ 1,3) The face of the patent identifies the two inventors by name and states that they are "both of Fed. Rep. of Germany." The "Assignee" is identified as U.S. Philips Corporation, New York, N.Y.

It had long been the law that notice requires an affirmative act by the patent owner. See Dunlap v. Schofield, 152 U.S. 244, 248 (1894). In Lans v. Digital Equipment Corp., 252 F.3d 1320 (Fed. Cir. 2001), the Court had occasion to address the question of the efficacy of notice by a person who is not the patent owner but who is closely affiliated with the patent owner. Mr. Håkan Lans was the sole inventor of the patent at issue and was managing director and sole shareholder of the patent owner, the company to whom he had assigned the patent. Lans sent a letter to the defendants accusing them of infringing the patent at issue. He identified himself as the inventor and owner of the patent but did not mention the name of the entity, holding title to the patent. The Federal Circuit rejected the assertion that notice by Lans was sufficient under section 287(a). The court reviewed the purpose of the rule requiring notice of the patentee's identity as well as notice of infringement.

The Lans court consciously choose to adopt a bright line test that the notice must be an affirmative act by the patent owner. It rejected the application of "agency" or "control" principles to determine whether, notice by an affiliate, was sufficient. In the words of the court:

[A] looser notification rule would present notable enforcement problems. Courts would have to decide the degree of association sufficient to satisfy the rule. Must the notifying party control the patentee, or simply have an interest in the patentee? Indeed, how much control or interest would suffice? Agency principles would not likely ease this problem because the notifying party would not likely even purport to act on behalf of the patentee. Accordingly, a looser rule would both frustrate the purpose of notification and present difficult, if not unworkable, enforcement problems.

Id. at 1327.

The standard under section 287(a), as explained in Lans, is not one of inquiry notice. Nor is it a standard of actual notice by a person or entity closely associated with the

patent owner. It requires actual notice by the patent owner. B.V., while having the word “Philips” in its name and having enclosed the ’181 patent, is indisputably not the patent owner. Rofles affixed his signature to the letter, but the letter does not require the reader to guess as to the identity of the sender; the signature block makes plain that the letter was sent by “PHILIPS INTERNATIONAL B.V.” and signed by Mr. Rofles. Mr. Rofles is not an employee of U.S. Philips. U.S. Philips, in actuality, invites the trier of fact to engage in an assessment of what Mr. Rofles intended or should be understood to have intended and the degree of affiliation and control between Philips and B.V.³ U.S. Philips’s proposed verdict form demonstrates how far afield from Lans is its position:

“Has Philips shown that it is more likely than not that Mr. Rofles was acting as the corporate representative of U.S. Philips Corporation when he sent the June 7, 2000 letter to Iwasaki?”

(Verdict Form Submission, 9/6/06, p. 5)

In order for the jury to return a verdict on U.S. Philips’s proposed question, the jury would need to apply the law of agency to an employee of a corporate affiliate. Alternatively, the jury would be set adrift, without regard to instructions from the court. Either approach is foreclosed by Lans.

I conclude, as a matter of law, that notice by “PHILIPS INTERNATIONAL B.V.” is not notice by the patent owner, U.S. Philips. Notice of infringement was first provided to Iwasaki by the filing of the original complaint in this action on January 8, 2003. Plaintiff’s claims for money damages are limited to those that arise on or after January 2003.

³ In opposing summary judgment, U.S. Philips has not explained the nature of the affiliation between B.V. and U.S. Philips. The Local Rule 1.9 Statement filed by U.S. Philips reveals that there is a public affiliate known as “Koninklijke Philips Electronics N.V.” The defendant’s counterclaim names as parties that entity, as well as an entity known as “Philips Electronics North America Corp.”.

II. Infringement

U.S. Philips asserts that Iwasaki has actively induced infringement of claim 1 of the '181 patent. "An infringement analysis involves two steps. First, the court determines the scope and meaning of the patent claims asserted . . . and then the properly construed claims are compared to the allegedly infringing device" Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454 (Fed. Cir.1998) (en banc) (citations omitted).

A. Claim Construction

Guided by the Federal Circuit's decision in Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005) (en banc), this court, in an earlier opinion, construed several terms in claim 1 of the '181 patent. Of significance to the present motion is the limitation in claim 1 that "at least one of the halogens Cl, Br or I is present in a quantity between 10^{-6} and 10^{-4} $\mu\text{mol}/\text{mm}^3$ ". U.S. Philips had urged, inter alia, that the claim should be interpreted as expressing orders of magnitude and should be construed to extend from 0.32×10^{-6} to 3.2×10^{-4} $\mu\text{mol}/\text{mm}^3$. (Devonshire Expert Report, p.20) For the reasons stated in my Memorandum and Order, I rejected U.S. Philips' argument that the phrase refers to a range between two orders of magnitude. "The specific context becomes critical to understanding. Here, I conclude that the use of two numbers in the phrase 'a quantity between ____ and ____' implies a specific range It does not imply a range between two values which are themselves ranges." 2006 WL 20504 at *4. I further noted that "[i]f the claim language were intended to refer to orders of magnitude, it likely would have used a modifier or qualifier and not have expressed the quantity in the seemingly absolute terms implied by the form 'present in a quantity between ____ and ____' Id. at *5. I concluded that the phrase means that "the halogen is present in the envelope or bulb in a quantity between 1 divided by 1,000,000 and 1 divided by 10,000 micromoles per cubic millimeter." Id.

B. Comparison to the Accused Device

The comparison of the claims as construed by the court to the accused device presents a question of fact. See Ferguson Beauregard v. Mega Sys., Inc., 350 F.3d 1327, 1338 (Fed.Cir. 2003). As with any factual issue, it is susceptible to analysis under summary judgment standards. See PC Connector Solutions LLC v. SmartDisk Corp., 406 F.3d 1359, 1364 (Fed. Cir. 2005) ("Summary judgment on the issue of infringement is proper when no reasonable jury could find that every limitation recited in a properly construed claim either is or is not found in the accused device either literally or under the doctrine of equivalents."). See also Honeywell Int'l., Inc. v. ITT Indus., Inc., 452 F.3d 1312, 1321 (Fed. Cir. 2006) (affirming grant of summary judgment under doctrine of equivalents concluding that "no reasonable trier of fact could find that these two structures are equivalent."); Bicon, Inc. v. Straumann Co., 441 F.3d 945, 955 (Fed. Cir. 2006) (affirming grant of summary judgment on literal infringement and under doctrine of equivalents); Novartis Pharm. Corp. v. Eon Labs Mfg., Inc., 363 F.3d 1306, 1312 (Fed. Cir. 2004) (affirming grant of summary judgment on literal infringement and under the doctrine of equivalents).

It is not disputed that, at least since the filing of the complaint, Iwasaki has had a target filling concentration of bromine of $1.6 \pm 0.4 \times 10^{-4}$. (Sugiura Dep. p.128-139; U.S. Philips Resp. to R 56.1 at No. 9) Such level unquestionably exceeds the 10^{-4} (1/10,000) $\mu\text{mol}/\text{mm}^3$ disclosed in the patent. That Iwasaki indisputably targets a particular concentration is not dispositive of whether its products are, in fact, at that concentration or above. In Iwasaki's "Statement of Undisputed Facts", it asserted that there is no evidence that it has exceeded the concentration claimed in the patent since the commencement of this action:

There is no evidence that Iwasaki has used a bromine filling concentration of less than 10^{-4} (1/10,000) $\mu\text{mol}/\text{mm}^3$ in any of its

accused lamps that it made and sold since filing of the original Complaint on January 8, 2003.

(Iwasaki R. 56.1 at No. 10) U.S. Philips was required by Local Rule 56.1 to respond to the statement and, indeed, it did so. While challenging its significance, U.S. Philips did not dispute the factual accuracy of Iwasaki's statement:

This statement as to evidence of Iwasaki's use of "a bromine filing concentration of less than 10^{-4} (1/10,000) $\mu\text{mol}/\text{mm}^3$ " for the manufacture of its lamps since the filing of the Complaint is not disputed. . . ."

(U.S. Philips Resp. to R 56.1 at No.10 (emphasis in the original); see also 9/1/06 Tr. 30.)

U.S. Philips argues that many of the lamps sold by Iwasaki since the filing of the complaint have bromine filing equal to 1×10^{-4} but only under rounding principles which it seeks to apply as part of the infringement analysis.

U.S. Philips asserts that "it is a question of fact in our view for the jury to decide, whether or not in comparing the specification to the product, do you use the absolute method or the rounding method." (9/1/06 Tr. 28; see also Tr. 4-17) Counsel views the question as "on the edge of theoretical consequences of claim construction. Where does that end and where does the fact inquiry begin" (9/1/06 Tr. 8) After argument on the summary judgment motion, U.S. Philips submitted the following proposed question it would have the jury answer:

Has Philips shown that it is more likely than not that the Rounding Method, and not the Absolute Method, should be used to determine whether the lamps made by Iwasaki have an amount of bromine between 1×10^{-6} and $1 \times 10^{-4} \mu\text{mol}/\text{mm}^3$?

(Verdict Form Submission, 9/6/06, p. 2) I conclude that the question of whether the numerical values expressed in the phrase "in a quantity between 10^{-6} and $10^{-4} \mu\text{mol}/\text{mm}^3$ " are expressed in absolute terms or are to be rounded is a question of claim construction and does not present a jury question.

The unanimous Court in Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996), held that there was no offense to the Seventh Amendment's preservation of the right to trial by jury in permitting judges to construe claim language and that there were jurisprudential reasons to do so even where it turned on disputed expert testimony. The subsequent en banc Federal Circuit opinion in Phillips, 415 F.3d 1303, has shed helpful light on the use of intrinsic and extrinsic evidence in claim construction. It is not necessary to again set out the hierarchy to be employed in a claim construction analysis which is set forth in this court's prior opinion. 2006 WL 20504 at *1.

In Viskase Corp. v. American National Can Co., 261 F.3d 1316, 1316 (Fed. Cir. 2001), the court considered whether the district court had correctly rounded the numerical expression of a density as described in a claim of "about 0.91 g/cm³". The district court construed the claim to mean between 0.905 and 0.914 g/cm³. The court reversed the district court's claim construction concluding that rounding was foreclosed by reason of the prosecution history. It also reversed the grant of summary judgment finding literal infringement because the density of the accused device was 0.912 g/cm³ which exceeded 0.91 g/cm³. The significance of Viskane to this case is that the Federal Circuit did not view the question presented as a factual question to be submitted to the trier of fact to determine whether the measurement of the accused device – 0.912 g/cm³ – should be rounded. Rather, it presented a claim construction issue to be decided as a matter of law.

No examination of the accused device, even to the limits of detection of bromine, is capable of answering the question of the meaning of the limitation that "at least one of the halogens Cl, Br or I is present in a quantity between 10⁻⁶ and 10⁻⁴ μmol/mm³". I conclude that rounding, as U.S. Philips would apply it to the accused device, presents an issue of claim construction and not a jury question. Cf. CytoLogix Corp. v. Ventana Med.

Sys., Inc., 424 F.3d 1168, 1172 (Fed. Cir. 2005) (“by agreement the parties also presented expert witnesses who testified before the jury regarding claim construction, and counsel argued conflicting claim constructions to the jury. This was improper, and the district court should have refused to allow such testimony despite the agreement of the parties.”)

At oral argument, I confirmed with the parties that further claim construction was not foreclosed at anytime during the pretrial stage and that the court was not locked into a position merely because it had conducted a Markman hearing and had ruled. (9/1/06 Tr. 9-10) See Jack Guttman, Inc. v. Kopykake Enters., Inc., 302 F.3d 1352, 1361 (Fed.Cir.2002) (“[d]istrict courts may engage in rolling claim construction, in which the court revisits and alters its interpretation of the claim terms as its understanding of the technology evolves.”). I inquired of U.S. Philips repeatedly whether it was their position that I could properly and lawfully rule in their favor on rounding as part of claims construction. After initially vacillating and then pausing to confer with co-counsel, counsel for U.S. Phillips asserted that the specific rounding theory presented only a fact question on infringement. (9/1/06 Tr. 5-13) Having advanced the argument, in response to questioning, that it would be error for this court, upon revisiting claim construction, to adopt as a matter of law its theory of rounding, U.S. Philips may not hereafter reverse course and complain of the consequences of its position. See Key Pharms. v. Hercon Labs. Corp., 161 F.3d 709, 715 n.1 (Fed.Cir. 1998) (discussing doctrines of estoppel, waiver and invited error.)

While disclaiming it as a form of claim construction and urging it as a jury question, U.S. Philips acknowledges that “[o]ur construction is completely extrinsic to the patent.” (9/1/06 Tr. 35) The central piece of extrinsic evidence that U.S. Phillips would place before the jury is ASTM’s “Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications” (E29-04) (the “Standard”), which essentially

encapsulates longstanding understandings and practices in the scientific community.⁴ The Standard addresses “the use of uniform methods of indicating the number of digits which are to be considered significant in specification limits, for example, specified maximum values and specified minimum values.” (ASTM E 29-04 at ¶1) It notes that there are “two commonly accepted methods of rounding data, identified as the Absolute Method and the Rounding Method. In the application of this practice to specific material or materials it is essential to specify which method is intended to apply.” (*Id.* at ¶4.1)

Under “Absolute Method,” “any deviation, however small, outside the specification limit signifies nonconformance with the specifications.” (*Id.* at ¶ 4.1.2) In contrast, “[t]he rounding method applies where it is the intent that a limited number of digits in an observed value or a calculated value are to be considered significant for purposes of determining conformance with specifications.” (*Id.* at 6.1) Rounding principles are not as easily summarized because, as the Standard acknowledges, the rounding procedures could be different for different values and could, if specified, include rounding to a different interval than the next whole digit. (*Id.* at ¶¶ 6.4-6.7) The Standard also cautions that “the level of rounding should be carefully selected considering both planned and potential uses for the data.” (*Id.* at ¶ 7.1)

As noted, the Standard views it as “essential to specify” whether the Absolute Method or Rounding Method is to apply. It is undisputed that the patentee in this case did not do so. In any event, U.S. Philips has abandoned any right to assert the application of these principles to claim construction by the court.

⁴ ASTM E29-04 is not the only piece of extrinsic evidence on which U.S. Phillips relies and that I have considered. See generally the Declaration of Dr. Robin Devonshire and exhibits. The points raised in the other extrinsic materials are, in the main, fairly subsumed under the principles stated in the Standard. ASTM International, the publisher of the Standard, is the modern successor to the century old American Society of Testing and Materials.

C. Doctrine of Equivalents

U.S. Philips also alleges infringement by Iwasaki under the doctrine of equivalents. “The doctrine of equivalents prevents an accused infringer from avoiding infringement by changing only minor or insubstantial details of a claimed invention while retaining their essential functionality.” Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1424 (Fed. Cir. 1997). “Although equivalence is a factual matter normally reserved for a fact-finder, the trial court should grant summary judgment in any case where no reasonable fact-finder could find equivalence.” Id. at 1423.

The doctrine was the subject of a thoughtful unanimous opinion of the Supreme Court in Warner-Jenkinson Co. v. Hilton Davis Chemical Co., 520 U.S. 17 (1997), which traced its origins and modern contours. Briefly, the patent at issue in Warner-Jenkinson was for a process for the purification of a dye. Id. at 21-22. The claim recited that the solution be “at a pH from approximately 6.0 to 9.0.” Id. at 22. The accused device operated at a pH of 5.0 and the patent owner conceded that there was no literal infringement and relied exclusively on the doctrine of equivalents. Id. at 23. The en banc majority in the Federal Circuit had concluded that the doctrine of equivalents was a viable theory that presented a jury question and that there was substantial evidence from which the jury could conclude that the alleged infringer’s process was not substantially different from the process disclosed in the patent. Hilton Davis Chem. Co. v. Warner-Jenkinson Co., 62 F.3d 1512 (Fed. Cir. 1995) (en banc). There were five dissenters in three dissenting opinions.

In reversing and remanding, the Supreme Court expressed concern that the doctrine had “taken on a life of its own, unbounded by the patent claims. There can be no denying that the doctrine of equivalents, when applied broadly, conflicts with the definitional and public-notice functions of the statutory claiming requirement.” 520 U.S. at 29. The

Court's opinion expressly "concur[red] with th[e] apt reconciliation of our two lines of precedent" set forth in the dissenting opinion of the late Judge Nies. Immediately preceding this statement were three quotations from Judge Nies's dissent, this first of which reads as follows:

[A] distinction can be drawn that is not too esoteric between substitution of an equivalent for a component *in* an invention and enlarging the metes and bounds of the invention *beyond* what is claimed.

Id. (quoting Hilton Davis Chem. Co., 62 F.3d at 1573 (dissenting opinion) (emphasis in the original)). The remainder of the paragraph in Judge Nies's dissent, which immediately follows the language quoted in the Supreme Court's opinion, enhances the understanding of the quote:

And it is a distinction that the Supreme Court has consistently drawn. Enlargement of the metes and bounds of the claim requires reexamination by the office charged with that function, now the Patent and Trademark Office. In contrast, assuming the PTO had done its job, as we must, known equivalents of a claim element were considered in determining patentability of an issued claim.

Id. (footnote omitted).

The Supreme Court went on to hold that the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole, and that the doctrine ought not be applied so as to effectively eliminate an individual element of the claim in its entirety. Id.⁵ While prior art and prosecution history estoppel, indeed, limit the application of the doctrine of equivalents, it cannot be successfully argued after Warner-Jenkinson Co. that they are the only limits or even the principal limits on the application of the doctrine.

⁵ That a theory of equivalence may not vitiate a particular claim element is sometimes referred to as the All Limitations Rule or, in earlier parlance, the All Elements Rule. See, e.g., Asyst Techs. v. Emtrak, Inc., 402 F.3d 1188, 1195 (Fed. Cir. 2005).

An instructive illustration of the application of the doctrine of equivalents to a quantitative limit post-Warner-Jenkinson is found in Moore U.S.A., Inc. v. Standard Register Co., 229 F.3d 1091, 1105-06 (Fed. Cir. 2000). There, the district court had granted summary judgment, concluding that a claim requiring that strips of adhesive extend a “majority of the lengths” of the longitudinal margins of the patented form was not, as a matter of law, infringed under the doctrine of equivalents where the strips of adhesive extended “about 48%” of the lengths. The patent owner asserted that there was a triable issue of fact whether, in context, “about 48%” was “insubstantially different” from 50.01%. In affirming the district court, the Federal Circuit disagreed:

If our case law on the doctrine of equivalents makes anything clear, it is that all claim limitations are not entitled to an equal scope of equivalents. Whether the result of the All Limitations Rule, . . . prosecution history estoppel or the inherent narrowness of the claim language. . . many warrant little, if any, range of equivalents.

* * * *

[T]o allow what is indisputably a minority (i.e. 47.8%) to be the equivalent of a majority would vitiate the requirement [of the claim] If a minority could be equivalent to a majority, this limitation would hardly be necessary

Id. at 1106.

In subsequent cases, the Federal Circuit has provided guidance to the district courts in the post-Warner-Jenkinson application of the doctrine of equivalents:

There is no set formula for determining whether a finding of equivalence would vitiate a claim limitation, and thereby violate the all limitations rule. Rather, courts must consider the totality of the circumstances of each case and determine whether the alleged equivalent can be fairly characterized as an insubstantial change from the claimed subject matter without rendering the pertinent limitation meaningless.

Freedman Seating Co. v. Am. Seating Co., 420 F.3d 1350, 1359 (Fed. Cir. 2005) (citations omitted). See also LG Elecs., Inc. v. Bizcom Elecs., Inc. 453 F.3d 1364, 1380 (Fed. Cir. 2006).

Here, the manner of expression makes it plain that the claim draftsman intended to establish the demarcation of boundaries. True, “[t]he fact that a claim recited numeric ranges does not, by itself, preclude . . . [reliance] on the doctrine of equivalents.” Abbot Labs. v. Dey L.P., 287 F.3d 1097, 1107-08 (Fed. Cir. 2002) (emphasis added). But the claim language at issue purports to state a “quantity” that is “present” and that “quantity” is “between” one value “and” another. This is the type of precision that is closely analogous to the metes and bounds of a deed of real property, the useful analogy cited with approval by the Supreme Court in Warner-Jenkinson. It is a notably more precise expression than “approximately 6.0”. Hilton Davis Chem. Co. v. Warner-Jenkinson Co., 114 F.3d 1161, 1164 (Fed. Cir. 1997) (on remand) (doctrine of equivalents available) or “68.6-90.7%”. Abbot Labs. v. Dey L.P., 287 F.3d at 1100 (doctrine available). See Cooper Cameron Corp. v. Kvaerner Oilfield Prods., Inc. 291 F.3d 1317, 1322 (Fed. Cir. 2002) (“Were we to ignore Cooper's decision to claim . . . a workover port that connects to the assembly only ‘between’ the plugs, we would vitiate that limitation and thereby run afoul of the all-limitations rule.”).

In Elektro Instrument S.A. v. O.U.R. Scientific Intern., Inc., 214 F.3d 1302, 1309 (Fed. Cir. 2000), the Federal Circuit construed a claim limitation using both the words “only” and “between” followed by a numerical range. Although it remanded the issue to the district court, the Federal Circuit left little doubt how the doctrine of equivalents would apply to the claim: “We note, however, that in light of our claim construction, a finding of infringement under the doctrine of equivalents would

seemingly vitiate the clear limitation ‘only within a zone extending between latitudes 30°-45°’ in claim 1.”⁶ Id. Though dictum, it, together with Moore U.S.A., is helpful.

I also note that the claim limitation in the ’181 patent was drafted with the prior art in mind. The Holmes patent, as referenced in the ’181 patent, discloses the presence of at least one of the halogens in a quantity of $5 \cdot 10^{-4}$ to $5 \cdot 10^{-2}$ grams of atoms per cub millimeter. (’181 patent, col.1, line 22) The expert witness of U.S. Philips converts the concentrations to micromoles per cubic millimeter and states that “[t]he Holmes Patent teaches a range of 5×10^{-4} to $5 \times 10^{-2} \mu\text{mol}/\text{mm}^3$ ” (Devonshire Answering Expert Report, p. 27). There is no assertion that, on a hypothetical infringement analysis, the concentration at which U.S. Philips seeks equivalency would be barred by the Holmes patent. But the Holmes patent was known prior art in the Examiner’s listing of “References Cited” and in the patent itself. Claim 1 of the ’181 patent which sets an upper limit of the halogen at $1 \times 10^{-4} \mu\text{mol}/\text{mm}^3$ was written aware that the Holmes patent presented an upper limit on the extent to which it could claim a concentration of halogen.⁷

The grant of summary judgment in favor of defendants under the doctrine of equivalents works no injustice in this case. As the Federal Cirucuit has noted:

[A]s between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek protection for this foreseeable alteration of its claimed structure

⁶ The Court went on to also express the view that prosecution history estoppel also would likely bar the application of the doctrine of equivalents. Id.

⁷ I find no assertion made by U.S. Philips that technology developed subsequent to the invention now permits the art to be practiced at concentrations above the upper limit of the ’181 patent but below the lower limit of the Holmes patent. See Sage Prods., Inc., 126 F.3d at 1425 (“No subtlety of language or complexity of the technology, nor any subsequent change in the state of the art, such as later-developed technology, obfuscated the significance of this limitation at the time of its incorporation into the claim.”). Because the issue was not fully developed by the parties, I do not rest my decision on this point.

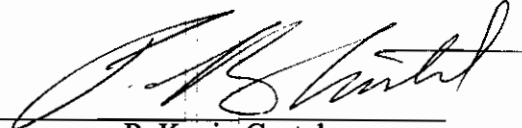
This court recognizes that such reasoning places a premium on forethought in patent drafting. Indeed this premium may lead to higher costs of patent prosecution. However, the alternative rule-allowing broad play for the doctrine of equivalents to encompass foreseeable variations, not just of a claim element, but of a patent claim-also leads to higher costs. Society at large would bear these latter costs in the form of virtual foreclosure of competitive activity within the penumbra of each issued patent claim. Because the doctrine of equivalents blurs the line of demarcation between infringing and non-infringing activity, it creates a zone of uncertainty, into which competitors tread only at their peril.

Sage Products, Inc., 126 F.3d at 1425.

Conclusion

Defendant's motion for partial summary judgment is granted.

SO ORDERED.



P. Kevin Castel
United States District Judge

Dated: New York, New York
September 28, 2006